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ABSTRACT

This study collected Victorian (Australia) public library and public library user Internet connectivity data that: provides a baseline measure of public library Internet connectivity; describes public library type and level of Internet connectivity; details public library branch Internet connectivity; reviews the costs of public library Internet connectivity; and assesses public library Internet connectivity from the perspective of librarians and users. The study describes the extent and nature of Victorian public library Internet connectivity as of August 1997. The study also describes user-based feedback on public library Internet-based services. Surveys were completed by all 42 Victorian public libraries, and user surveys were completed by 444 users. As of August 1997, 90.5% of Victorian public library services had some type of Internet connection. Overall, 58.5% of public library branches were connected to the Internet. The user survey served to: describe the types of users making use of public library public access Internet services; explore the types of Internet-related activities in which users engaged through the libraries' public access services; and measure the overall satisfaction of users with the libraries' public access services. The report also compares findings from the study with a similar survey of U.S. public library connectivity, highlighting key issues. The library service survey and user survey are appended. (Contains 20 references.) (SWC)

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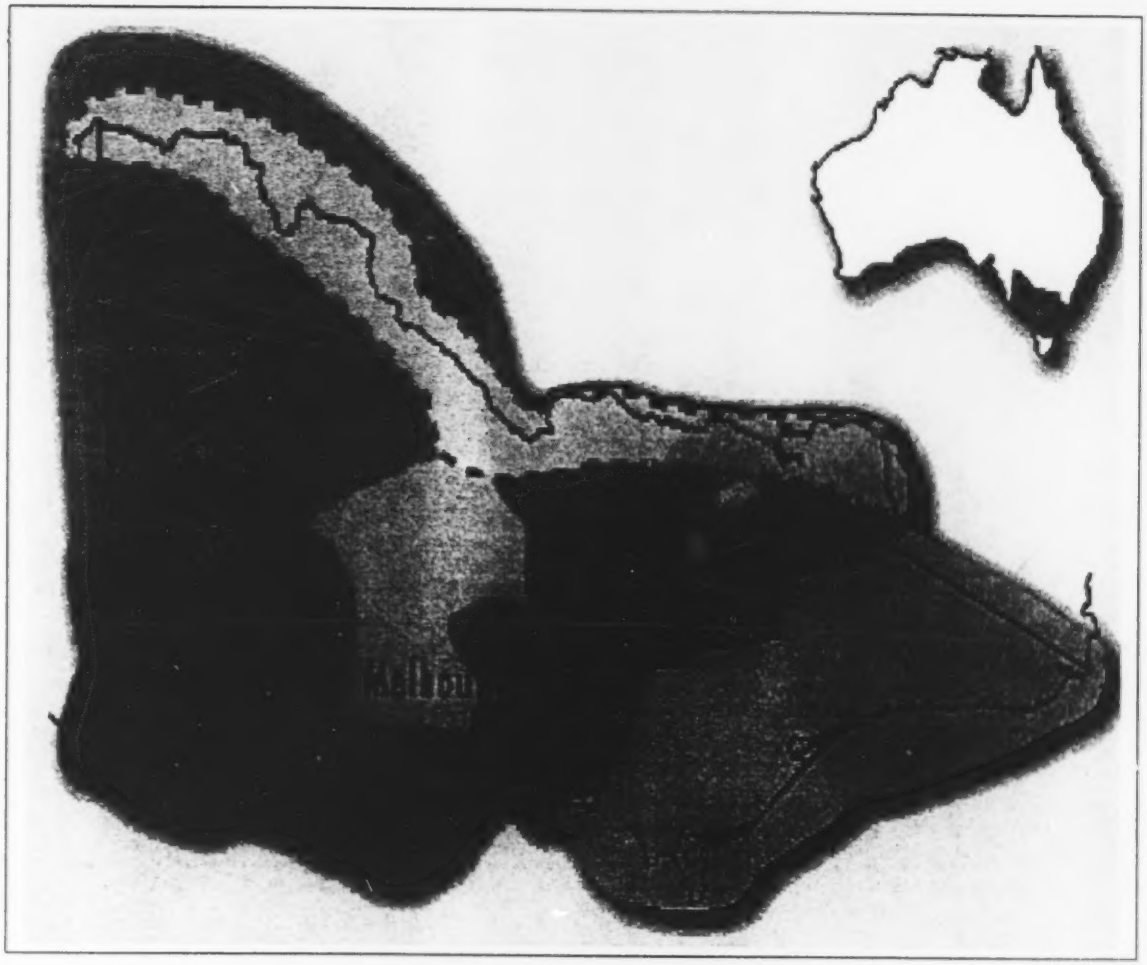

Victorian Public Libraries and the Internet:

Results and Issues

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John Carlo Bertot
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March 1998

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INTRODUCTION

Victorian public libraries have been leading Australian public libraries in their rapid adoption of Internet connectivity. The effort to connect Victorian public libraries to the Internet is the result of collaboration and partnerships between the Victorian government, the Victoria State Library, the Royal Melbourne Institute of Technology, and the public library community. These partnerships, and the efforts of public librarians, enabled Victorian public libraries to achieve 100% Internet connectivity for the 42 Victorian library services in a relatively short period of three years (1994-1997).

On December 3, 1997, the Premier of Victoria launched the *Networking for all Victorians* project. The project was conceived in 1995 when Ross Gibbs who was the Director of the Office of Library Services, Arts Victoria, suggested Viclink approach the Victorian Government's Community Support Fund (CSF) for a grant to link all Victorian public libraries to the Internet and provide free public access to the Internet for all Victorians through public libraries (Mackenzie and Siegersma, 1996). The purpose of the grant was to:

- Provide all Victorians with affordable access to information electronically;
- Develop a network infrastructure;
- Provide community benefit;
- Provide equitable access to electronic information and resources; and
- Build on the public library network.

These goals provided the basis for Victoria public library Internet connectivity activities.

A Working Group comprised of Victoria public librarians and representatives from Arts Victoria, VICNET and Viclink undertook to oversee the project (for background reading on Viclink, and VICNET, see Mackenzie and Siegersma, 1996). The Working Group identified three levels of access for libraries, and recommended that libraries should attain levels of connectivity following these stages:

- Level one - ISDN to the headquarters of every Victorian public library service, and public Internet access provided;
- Level two - ISDN to at least the headquarters of every Victorian public library service, and public Internet access at most branches through ISDN and/or dial-up; and
- Level three - Public Internet access via WAN to all branches in the library system. Library runs its own file server for community information, publishing etc.

Grant applications by library services were submission based, with significant input from VICNET. The library was required to make a commitment to ongoing costs associated with maintaining

connectivity. A component to the CSF grant went straight to VICNET and a further amount for training. Services received funding allocations in the amount of $2,500 per branch. Viclink conducted a one-day seminar designed to provide library managers with the necessary tools and information to enable a strategic implementation plan to be devised and to prepare submissions.

This study, sponsored by Viclink, collected Victorian public library and public library user Internet connectivity data that:

- Provides a baseline measure of public library Internet connectivity;
- Describes public library type and level of Internet connectivity;
- Details public library branch Internet connectivity;
- Reviews the costs of public library Internet connectivity; and
- Assesses public library Internet connectivity from the perspective of librarians and users.

The study describes the extent and nature of Victorian public library Internet connectivity as of August 1997. The study also describes user-based feedback on public library Internet-based services.

METHODOLOGY

This study used two separate surveys to collected data: (1) a library survey (see Appendix A) designed to assess Victorian public library connectivity, and (2) a user survey (see Appendix B) designed to capture user-based perceptions and issues concerning the public Internet access services offered by public libraries.

The study team for the surveys consisted of two U.S. consultants (John Carlo Bertot and Charles R. McClure), a Victoria-based consultant (Jane King of Practico), and a Victoria public library services manager and president of Viclink (Christine Mackenzie).

Library Survey

The study team relied on the expertise of Victorian public librarians, the U.S. and Victoria consultants, and site visits to develop the survey instruments. After a weeklong visit to Victoria in June 1997 during which one of the U.S. consultants conducted numerous site visits, the study team developed an initial library survey. This survey was pre-tested by five public librarians, as well as the Victoria consultant, of the type who would complete the final survey. The comments and suggestions provided by the librarians and consultant were incorporated into a second version of the survey. This new version of the survey was reviewed again by the initial pre-testers. Upon receiving additional comments on the survey, the survey was finalized in July 1997.

The survey was distributed to all 42 Victorian library services in August 1997. To ensure a high response rate,

the Victoria-based members of the study team sent letters to library managers, made follow-up phone calls, faxed additional copies of the survey when needed, and answered questions concerning the survey via the phone and e-mail. These efforts led to the library service survey's 100% response rate.

User Survey

While the library service survey was underway, the study team developed a user survey for distribution to selected library services. The study team developed and distributed a draft user survey to three public library service staff for their review and comment. The study team revised and finalized the user survey based on the librarian comments.

Upon completion of the library service survey, libraries were asked to indicate their willingness to participate in a follow-up survey of public Internet access users. From the affirmative responses, the study team selected five library services that provided a:

- Mix of non-metropolitan and metropolitan areas;
- Geographic representation in the State; and
- Strong willingness to cooperate and solicit a high degree of user participation.

The five libraries provided a total of 24 branches with public Internet access.

Participating library services received a cover letter and instruction letter, along with 1,300 questionnaires, during August 1997. The larger library services received 400 copies of the survey, while the smaller services received 200 copies of the survey. The letters asked libraries to have users complete the survey during the same one-week period in August. Of the 1,300 questionnaires, 444 completed surveys were returned.

Prior to the distribution of either the library service or user surveys, the study team developed a database of all Victorian public libraries that identified the urban/rural (metropolitan/non-metropolitan) nature of each library based on the library population served census data available from several Victorian public library reports. This permitted the consultants to analyze survey data by the metropolitan/non-metropolitan status of library services.

The next section presents the library and user study findings.

FINDINGS

This section presents the results from the library service and user surveys. The data are presented separately, beginning with the library service survey findings.

Figure 1. Library Services Operating Expenditures and EFTs.

Average Operating Expenditures (n=42)	Average EFTs (n=42)
$1,819,496.00 range: $241,090-$6,000,000	32.3 range: 2.5-103 EFTs

Library Service Survey Findings

Library Service Demographics

As Figure 1 indicates, the Victorian public libraries have an average operating expenditure of $1,819,496.00, with a range of $241,090.00 to $6,000,000.00. Overall, Victorian public libraries have an average of 32.3 EFTs, with a range of 2.5 to 103.

Victorian Library Internet Connectivity

As of August 1997, 90.5% of Victorian public library services had some type of Internet connection (see Figure 2). Victorian public libraries had their Internet connections an average of 18.9 months, with a range of one month to 38 months.

Overall, 58.5% of public library branches were connected to the Internet (see Figure 3). For those library services that have an Internet connection, 71.4% of their branches had some type of Internet connectivity. One bookmobile also has an Internet connection (see Figure 3).

Figure 2. Library Services Connected to the Internet.

% Connected (n=42)	Average Months Connected (n=36)
90.5%	18.9 range: 1-38 months

Figure 3. Branches and Bookmobiles Connected to the Internet.

Overall % Branches Connected (out of 253 branches)	**Average % Branches Connected***	**Bookmobiles Connected**
58.5%	71.4%	1
* Calculated as an average for public library services connected to the Internet. Of those library services connected to the Internet, an average of 71.4% of branches are connected.		

Factors Affecting Library Connectivity

The data in Figure 4 indicate that several factors affect Victoria public library involvement with the Internet. In particular, Victorian public libraries consider the most important factors affecting their Internet use to be Availability of federal/state funding (rating of 1.8, with 1 = Very Important and 5 = Very Unimportant), Costs of staffing (rating of 1.9), Costs of system/server hardware (rating of 2.0), Availability of staff time to develop expertise on the Internet (rating of 2.0), Availability of in-house computer technical expertise (rating of 2.1), Costs of communications hardware (rating of 2.1), and Costs of telecommunications fees (rating of 2.2).

Perhaps more interesting is that non-metropolitan libraries consider the Costs of telecommunication fees as more important (rating of 1.7) than do metropolitan libraries (rating of 2.7) (see Figure 4). Non-metropolitan libraries also consider the Availability of staff time to develop expertise on the Internet as more important (rating of 1.6) than do metropolitan libraries (rating of 2.3).

Library Type of Internet Connection and Connection Costs

Overall, Victorian public libraries spend an average of $184,880.90 on information technology (IT) (see Figure 5). As Figure 5 also shows, metropolitan libraries significantly outspend non-metropolitan libraries on IT, with $236,000.00 as compared to $130,754.00.

Victorian public libraries indicate that they spend an average of $41,581.03 on Internet-related expenditures (see Figure 5). As with IT expenditures, metropolitan libraries significantly outspend non-metropolitan libraries on Internet-related expenditures, with $56,109.10 as compared to $24,489.20.

Figure 4. Factors Affecting Library Service Current Level of Internet Use for Public Access.

Factor	Average Metropolitan Library Assessment	Average Non-Metropolitan Library Assessment	Overall Library Assessment
Costs of system/server hardware (e.g., PCs, terminals, servers)	1.9	2.1	2.0
Costs of software (e.g.., operating systems -- Unix, Windows NT -- applications software -- WordPerfect)	2.9	2.9	2.9
Costs of communications hardware (e.g., routers, modems)	1.9	2.4	2.1
Costs of telecommunications fees (e.g., long distance charges, leased lines)*	2.7	1.7	2.2
Costs of training and education (for staff and users)	2.8	2.9	2.8
Costs of content/resource development (e.g., special collections development, Web home page development)	2.6	3.2	2.9
Costs of facilities upgrades (e.g., wiring, air conditioning)	3.0	3.0	3.0
Costs of staffing (e.g., EFTs dedicated to management/maintenance of IT)	2.0	1.9	1.9
Costs of Internet connection maintenance (e.g., equipment repairs, equipment maintenance)	2.6	2.3	2.4
Access to reliable telecommunications services	2.5	2.5	2.5
Availability of a reliable Internet Service Provider	2.3	2.4	2.4
Availability of in-house computer technical expertise	2.0	2.2	2.1
Availability of staff time to develop expertise on the Internet**	2.3	1.6	2.0
Availability of federal/state money	1.8	1.8	1.8
Ability to plan for and integrate new technologies	2.3	1.9	2.1
Concern over access to objectionable material	3.9	3.6	3.7
1=Very Important		**5=Very Unimportant**	

*Statistically significant t-test; $p<.0089$

**Statistically significant t-test; $p<.0085$

Figure 5. Library Service Information Technology and Internet Expenditures.

	Total Average Library IT Expenditures*	Total Average Library Internet Expenditures**	Total Average Library Internet Expenditures Not Paid by Library
Metropolitan	$236,000.00 range: $20,000.00-$657,085.00	$56,109.10 range: $5,000.00-$217,800.00	$14,085.50 $0.0-$58,000.00
Non-Metropolitan	$130,754.00 range: $4,258.00-$315,282.00	$24,489.20 range: $1,700.00-$76,000.00	$16,924.40 $5,600-$45,000.00
Overall	$184,880.90 range: $4,258.00-$657,085.00	$41,581.03 range: $1,700.00-$217,800.00	$15,328.62 range: $0.0-$58,000.00

*Statistically significant t-test; p<.0448

**Statistically significant t-test; p<.0500

As Figure 5 also indicates, the average Victorian public library does not pay for $15,328.62 of its Internet-related costs. These subsidies vary little by metropolitan ($14,085.50) and non-metropolitan ($16,924.40) libraries.

Nearly all Victorian public libraries and their branches -- 97.6% -- have an Internet gateway type (e.g., graphical using a point-to-point [PPP] connection) of Internet connection (see Figure 6).

A majority of the libraries with dial-up connections -- 53.0% -- use 28.8kbps modems, followed by 39.8% with 33.6kbps modems, and 7.2% with 14.4kbps modems (see Figure 7).

Victorian public libraries have an average of 1.2 dial-up Internet lines, with a range of one to eight (see Figure 8). The average annual cost per line is $664.16, with a range of $0.0 to $2,680.00 (see Figure 8).

Figure 6. Library Service Branch Type of Dial-Up Internet Connections.

Internet Gateway Access	Other
97.6% (n=81)	2.4% (n=2)

Figure 7. Library Service Branch Speed of Dial-Up Internet Connections.

14.4 Kbps or Less	28.8 Kbps	33.6 Kpbs
7.2% (n=6)	53.0% (n=44)	39.8% (n=33)

As shown in Figure 9, 34.6% of Victorian public libraries do not have a leased-line (dedicated) connection. Of those libraries that do have a leased-line connection, 42.3% have a wide area network and 10.6% have a local area network. Of the 12.5% of libraries that indicated an "other" form of leased-line connection, nearly all were part of a Council wide area network and thus did not maintain the library's connection directly (see Figure 9).

Nearly all Victorian public libraries with a leased-line Internet connection -- 85.9% -- had a single 64kbps ISDN line (see Figures 10 and 11). Only one library indicated that it had a 128kbps ISDN line.

The average annual cost to libraries of a 64kbps ISDN line is $4,229.75, with a range of $0.0 to $15,000.00 (see Figure 12). The one library that has a 128kbps ISDN line pays $3,012.00 per year for that service.

As Figure 13 clearly shows, a vast majority of non-metropolitan libraries -- 68.7% -- have dial-up connections as compared to only 28.9% of metropolitan libraries. Indeed, fully 29.8% of non-metropolitan libraries have no leased-line Internet connection.

Overall, libraries rate their Internet connections as "adequate" to "slightly inadequate" (see Figure 14). Overall, Victorian public libraries find that they can access a reliable Internet service provider (rating of 2.0, with 1=Very Adequate, 5=Very Inadequate), followed by Sufficient PC copabilities (rating of 2.9), Accessing multi-media information

Figure 8. Library Service Branch Average Number and Cost of Dial-Up Internet Connection Lines.

Average Number of Lines	Average Annual Cost Per Line
1.2 range: 1-8	$664.16 range: $0.0-$2,680.00

Figure 9. Library Service Branch Type of Leased-Line Internet Connections.

Local Area Network	Wide Area Network	Other	No Leased-Line Connection
10.6% (n=11)	42.3% (n=44)	12.5% (n=13)	34.6% (n=36)

Figure 10. Library Service Branch Speed of Leased-Line Internet Connections.

64 Kbps	Other
85.9% (n=55)	14.1% (n=9)

Figure 11. Library Service Branch Average Number of Leased-Line Internet Connection Lines.

64 Kbps	128 Kbps
1.0 (n=58)	1.0 (n=1)

Figure 12. Library Service Branch Average Cost of Leased-Line Internet Connection Lines.

64 Kbps	128 Kbps
$4,229.75 range: $0.0-$15,000	$3,012.00 (n=1)

Figure 13. Library Service Branch Internet Connection Type by Metropolitan/ Non-Metropolitan Libraries.

	Dial-Up (N=83)		Leased-Line (N=104)			
	Internet Gateway Access	Other	Local Area Network	Wide Area Network	Other	No Leased-Line Connection
Metropolitan	28.9% (n=24)	0.0% (n=0)	8.7% (n=9)	36.5% (n=38)	9.6% (n=10)	4.8% (n=5)
Non-Metropolitan	68.7% (n=57)	2.4% (n=2)	1.9% (n=2)	5.8% (n=6)	2.9% (n=3)	29.8% (n=31)

(rating of 3.0), and Sufficient bandwidth (rating of 3.0).

In analyzing the Internet connection ratings by metropolitan and non-metropolitan libraries, however, a very different picture emerges (see Figure 14). Non-metropolitan libraries consistently and significantly rate their Internet connections as Inadequate as compared to metropolitan libraries. Indeed, non-metropolitan libraries indicate that they have:

- Insufficient bandwidth (rating of 3.6, with 1=Very Adequate, 5=Very Inadequate);
- Poor multi-media information access capabilities (rating of 3.3);
- Poor local area network capabilities (rating of 3.1);
- Insufficient PC capabilities (rating of 2.7); and
- More difficulty locating a reliable Internet service provider (rating of 2.4).

Non-metropolitan libraries, therefore, consider their Internet connectivity to be less adequate than do metropolitan libraries.

Finally, 28.9% of public library services have homepages and 13.2% host Web pages for local organizations (see Figure 15). Of those libraries that host other organizations' Web pages, 40% charge fees for the service.

Figure 14. Library Service Branch Internet Connection Ratings by Metropolitan/ Non-Metropolitan Libraries.

	Metropolitan	Non-Metropolitan	Overall
Accessing multi-media information (e.g., full motion video, sound, images)*	2.8 (n=79)	3.3 (n=69)	3.0 (N=148)
Sufficient bandwidth (e.g., speed of connection)**	2.5 (n=79)	3.6 (n=69)	3.0 (N=148)
Sufficient PC capacity (e.g., disk space, memory)***	2.1 (n=79)	2.7 (n=67)	2.4 (N=146)
Local Area Network capabilities (e.g, speed, capacity)	2.8 (n=74)	3.1 (n=66)	2.9 (N=140
Accessing reliable Internet service providers****	1.7 (n=79)	2.4 (n=69)	2.0 (N=148)
1=Very Adequate		**5=Very Inadequate**	

*Statistically significant t-test; p<.0286

**Statistically significant t-test; p<.0001

*** Statistically significant t-test; p<.0015

**** Statistically significant t-test; p<.0001

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Figure 15. Library Services that Have their Own Homepages and Host Homepages for Local Community Organizations.

% Library Services with Homepages	% Hosting Web Pages for Local Organizations	% Fee for Hosting Web Pages
28.9% (n=11)	13.2% (n=5)	40.0% (n=2)

Public Access Services

Victorian public library services offer a variety of public access Internet services to patrons. Such services range from graphical Web access to newsgroup services to printing services.

As Figure 16 shows, nearly all -- 90.4% -- of connected library services provide graphical access to the Web. This is followed by 78.6% of library services that provide public access printing services, 50.0% that provide public access on-line CD services, and 47.6% that provide public access to newsgroup services. Only 21.4% of library services provide public access to e-mail account services.

In terms of branches, however, a different picture of public access services emerges. Graphical Web access is available in 24.1% of all library service branches, followed by 20.2% of branches that provide printing services, 15.0% that offer access to newsgroup services, and 12.3% that provide access to on-line CD services. E-mail account services are only available in 3.6% of all library service branches.

Of those library services that do provide graphical Web access, 44.7% do so at the main/central library and all branches, followed by 42.1% at the main/central library and some branches, and 13.1% at the main/central library only (see Figure 16).

Similar trends exist for printing, newsgroup, and on-line CD public access services, indicating a split in public access service provision among library services: a clear core of library services provide a wide array of public access Internet services in all of their facilities, while another segment of library services provide public access Internet services in selected facilities. Public access services are, therefore, not evenly distributed among library services.

As Figure 17 indicates, a vast majority of public access Internet services are provided free of charge to patrons. The notable exception is print-

Figure 16. Public Access Internet Services by Library Services and Branches.

Service	Overall Service Provision by Library Services	At Main/ Central Library ONLY	At Main/ Central Library and ALL Branches	At Main/ Central Library and SOME Branches	Total % of Branches Offering Service
E-mail account services	21.4% (n=9)	22.2% (n=2)	22.2% (n=2)	55.6% (n=5)	3.6% (n=9)
Access to newsgroup services	47.6% (n=20)	20.0% (n=4)	25.0% (n=5)	55.0% (n=11)	15.0% (n=38)
Graphical World-Wide Web	90.4% (n=20)	13.1% (n=5)	44.7% (n=17)	42.1% (n=16)	24.1% (n=61)
On-line database services (e.g., Dialog, Uncover)	16.6% (n=7)	28.6% (n=2)	28.6% (n=2)	42.8% (n=3)	2.0% (n=5)
On-line CD services (Encarta, Census Data)	50.0% (n=21)	28.6% (n=6)	28.6% (n=6)	42.8% (n=9)	12.3% (n=31)
On-line reference services (e.g., e-mail reference questions and answers)	19.0% (n=8)	50.0% (n=4)	0.0%	50.0% (n=4)	3.6% (n=9)
Printing services (e.g., patrons can print Internet material)	78.6% (n=33)	15.2% (n=5)	39.4% (n=13)	45.4% (n=15)	20.2% (n=51)
Special software/hardware for individuals with disabilities	19.0% (n=8)	62.5% (n=5)	0.0%	37.5% (n=3)	2.0% (n=5)
Other Services	11.9% (n=5)	20.0% (n=1)	40.0% (n=2)	40.0% (n=2)	3.6% (n=9)

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Figure 17. Library Service Fees for Internet Services.

Service	Fee
E-mail account services (N=9)	11.1% (n=1)
Access to newsgroup services (N=20)	5.0% (n=1)
Graphical World-Wide Web (N=38)	5.3% (n=2)
On-line database services (e.g., Dialog, Uncover) (N=7)	14.3% (n=1)
On-line CD services (Encarta, Census Data) (N=21)	0.0%
On-line reference services (e.g., e-mail reference questions and answers) (N=8)	12.5% (n=1)
Printing services (e.g., patrons can print Internet material) (N=33)	57.6% (n=19)
Special software/hardware for individuals with disabilities (N=8)	0.0%
Other Services (N=5)	60. 0%

ing services, for which 57.6% of library services have a printing charge. This charge generally takes the form of a per-page printing charge to patrons.

As Figure 18 indicates, nearly all library services, 90.5%, have public access Internet PCs. On average, library services have 7.8 public access

Figure 18. Library Service Public and Staff Access Internet PCs.

% Services with Public Access PCs	Average Number PCs	% Services with PCs for Staff Use	Average Number PCs
90.5% (n=38)	7.8 range: 1-22	83.3% (n=35)	8.0 range: 1-40

Figure 19. Library Service Rating of Public and Staff Access Internet PCs.

Public/Staff Access Service	Average Rating
Our library's patrons have adequate access to terminals/PCs (e.g., 10 minutes or less waiting for access to a terminal/PC)	3.4
Our library staff have adequate access to terminals/PCs (e.g., 10 minutes or less waiting for access to a terminal/PC)	2.9
Our library's public access PCs are sufficiently equipped for today's multi-media requirements (e.g., sufficient memory, hard disk storage, sound capabilities)	2.9
1=Strongly Agree **5=Strongly Disagree**	

PCs, with a range of 1-22 PCs. Similarly, 83.3% of library services have dedicated PCs for library staff. The average library service has 8.0 staff-only PCs, with a range of 1-40 PCs.

Overall, library services disagree that their public and staff Internet access services are adequate (see Figure 19). Libraries do not agree that their patrons have adequate access to terminals/PCs (rating of 3.4, where 1=Strongly Agree and 5=Strongly Disagree), staff have adequate access to terminals/PCs (rating of 2.9), or that their PCs are sufficiently equipped for multi-media requirements (rating of 2.9).

Library Service Internet Training Programs

Of connected public library services, 50.0% offer the public Internet/ computer training courses (see Figure 20). Of the libraries that offer computer/Internet training programs, 38.9% have dedicated computer training facilities, and 47.4% charge fees for their training programs (see Figure 20).

For libraries that offer training programs, 100.0% provide introductory Internet courses, and 26.3% provide introduction to computer and advanced Internet courses (see Figure 21). Overall, libraries providing training services estimate that they had trained 188.0 users as of August 1997, with a range of 0 to 600. A majority of library training courses -- 68.4% -- are taught by qualified/credentialed trainers, while 36.8% of the courses are taught by non-credentialed trainers (see Figure 22).

Z39.50 Compliance

Lastly, the survey collected data from library services regarding their OPAC Z39.50 compliance status. As Figure 23 indicates, 45.7% of library service OPACS are Z39.50 compliant, and 84.0% of the non-compliant OPACs could be upgraded to comply with the Z39.50 standard.

Figure 20. Library Service Internet/Computer Training Programs.

% Library Services Providing Internet/Computer Training (N=38)	% Library Services with Training Facilities (N=19)	% Library Services Charging Fees for Training (N=19)
50.0% (n=19)	38.9% (n=7)	47.4% (n=9)

Figure 21. Library Service Internet/Computer Training Courses.

Introduction to Computer Courses (N=19)	Introduction to Internet Course (N=19)	Advanced Internet Technique Courses (N=19)	Average Number of Users Trained
26.3% (n=5)	100.0% (n=19)	26.3% (n=5)	188.0 range: 0-600

Figure 22. Library Service Internet/Computer Training Instructors.

% Courses Taught by Qualified Trainer (N=19)	% Courses Taught by Non-Credentialed Librarian/Staff (N=19)	% Courses Taught by Other (N=19)
68.4% (n=13)	36.8% (n=7)	10.5% (n=2)

Figure 23. Library Service Branch OPAC Z39.50 Status.

Z39.50 Compliant (N=151)	Z39.50 Upgrade (N=81)
45.7% (n=69)	84.0% (n=68)

Figure 24. Library User Gender.

Male	62.2% (n=271)
Female	37.8% (n=165)

User Survey Findings

This section presents findings from the user survey distributed to selected library services during August 1997. The purpose of the survey was to:

- Describe the types of users making use of public library public access Internet services;
- Explore the types of Internet-related activities in which users engaged through the libraries' public access services; and
- Measure the overall satisfaction of users with the libraries' public access services.

As designed and distributed, the survey does not necessarily provide generalizable results to the population of library service public Internet access users (see the *Methodology* section on page 2). Rather, the survey provides some sense of the types of users who access the Internet through public libraries and the uses of the Internet by those users.

User Demographics

A majority of public access Internet workstation users are male (62.2%), between the ages of 10 and 29 (64.5%), and have a secondary education (41.6%) (see Figures 24-26).

User Internet Skills, Use, and Access

As shown in Figure 27, 50.2% of library users consider themselves to have intermediate Internet skills, followed by 36.4% that indicate they have novice Internet skills, and 13.4% that indicate they have expert Internet skills.

A vast majority -- 74.3% -- of library public access Internet users are not new users of the library (see Figure 28). Interestingly, however, 25.7% of the Internet users are new users to the library specifically due to the public access Internet services offered by the library.

Overall, 40.9% of the library public access Internet services users have no other access to the Internet (see Figure

Figure 25. Library Internet User Age.

Under 10	2.3% (n=10)
10-19	42.8% (n=189)
20-29	21.7% (n=96)
30-39	14.3% (n=63)
40-49	11.8% (n=52)
50-59	4.1% (n=18)
60-69	2.3% (n=10)
Over 69	1.0% (n=4)

Figure 26. Library Internet User Education.

Primary	16.9% (n=74)
Secondary	41.6% (n=182)
Technical/TAFE	16.7% (n=73)
University	24.7% (n=108)

Figure 27. Library Internet User Internet Use Skills.

Novice User	36.4% (n=161)
Intermediate User	50.2% (n=222)
Expert User	13.3% (n=59)

Figure 28. New User to Library Due to Internet Connection.

Yes	25.7% (n=113)
No	74.3% (n=327)

Figure 29. Library Internet User Other Means of Internet Access.

Home	5.0% (n=22)
Work	6.1% (n=27)
School	27.3% (n=120)
Other	7.9% (n=35)
Multiple*	12.7% (n=56)
No Other Access	**40.9%** (n=180)

* These users have access to the Internet in multiple locations, for example, at both home and work.

29). However, 59.1% of the patrons do have other access to the Internet available to them at school (27.3%), work (6.1%), home (5.0%), and other locations (7.9%). Also, 12.7% of the users indicated that they had other means of Internet access in multiple locations (e.g., at work and school).

A majority of users -- 52.4% -- use the libraries' Internet access services for multiple purposes (e.g., homework/ study, work-related, and recreation) (see Figure 30). In all, 14.2% of the users use the Internet services for general browsing, followed by 9.4% for recreation, 7.2% for homework/study, and 6.7% for work.

User Satisfaction with Public Access Internet Services

The survey asked library patrons several questions concerning their satisfaction with the libraries' public access Internet services (see Figure 31). Overall, library patrons agree that (agreement percentages determined by summing the "strongly agree" and "agree" categories):

- They would tell other members of the community about the library's Internet connection (86.8%);
- Having access to the Internet is very important (82.1%);

Figure 30. Library Internet User Use of the Internet.

Work-related	6.7% (n=28)
Recreation	9.4% (n=39)
Homework/Study	7.2% (n=30)
General Browsing	14.2% (n=59)
Other	10.1% (n=42)
Multiple*	52.4% (n=218)

* These users use the Internet for multiple purposes, for example, both work-related and general browsing.

- The Internet access provided by the library is easy to use (82.0%);
- They generally find information that is useful and interesting on the Internet (81.9%);
- They are able to use the Internet without library staff or other assistance (75.5%);
- The computer and telecommunications equipment work well (74.0%);
- The library provides Internet use training that meets their needs (72.5%); and
- There is adequate access to the library's Internet computers (65.5%).

Most respondents -- 47.4% -- found the speed of the Internet connection to be adequate (see Figure 31).

To determine differences in the level of satisfaction with library public access Internet services, the data were examined by metropolitan and non-metropolitan library users and novice/expert users (see Figures 32 and 33).

Generally, non-metropolitan and metropolitan users indicate the same level of satisfaction with library public access Internet services (see Figure 32). Of particular interest, however, is that non-metropolitan users were less satisfied with the availability of library public access computers (rating of 2.0, with 1=Strongly Agree and 5=Strongly Disagree) than metropolitan users (rating of 2.3).

Figure 31. User Satisfaction with Library Public Internet Access.

Factor	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
While on the Internet, I generally find the information that I come to the library to obtain (N=424)	34.2%	36.6%	21.9%	4.2%	3.1%
While on the Internet, I generally find information that is very useful and interesting (N=420)	43.6%	38.3%	13.3%	3.6%	1.2%
The Internet access provided by the library is easy to use, e.g., getting to the Internet from the computer, organized links of Internet-based resources (N=422)	50.5%	31.5%	11.4%	5.0%	1.7%
Having access to the Internet via the library is very important to me (N=420)	59.0%	23.1%	13.3%	2.6%	1.9%
The computer and telecommunications equipment all work very well (N=418)	40.0%	34.0%	17.9%	5.5%	2.6%
I find the speed of the Internet, e.g., loading graphics and downloading information, to be quite good (N=420)	18.8%	28.6%	29.5%	12.6%	10.5%
There is adequate access to the library's Internet computer(s), e.g., little or no waiting time (N=422)	31.9%	33.6%	23.2%	8.8%	2.4%
I would tell other members of the community about the library's Internet connection (N=418)	56.2%	30.6%	9.8%	1.9%	1.4%
I was able to use the Internet without library staff or other assistance (N=417)	54.9%	20.6%	12.0%	4.8%	7.7%
This library provides Internet use training that meets my needs, e.g., general Internet use, searching, printing (N=400)	42.5%	30.0%	20.3%	4.0%	3.3%

As Figure 33 indicates, there are numerous differences in the level of satisfaction with library public access Internet services by the level of expertise of users. Expert users, as compared to novice users are:

- More able to use the Internet without library assistance (rating of 1.5, with 1=Strongly Agree and 5=Strongly Disagree);
- Able to use the library's Internet access more easily (rating of 1.6);
- Generally able to find information that is useful and interesting (Rating of 1.6);
- Less likely to tell other members of the community about the library's Internet services (rating of 2.0); and

Figure 32. User Satisfaction with Library Public Access Internet Services by Metropolitan/Non-Metropolitan Libraries.

Factor	Average Metropolitan User Assessment	Average Non-Metropolitan User Assessment	Overall User Assessment
While on the Internet, I generally find the information that I come to the library to obtain	2.0 (n=241)	2.0 (n=183)	2.0 (N=424)
While on the Internet, I generally find information that is very useful and interesting	1.7 (n=238)	1.9 (n=182)	1.8 (N=420)
The Internet access provided by the library is easy to use, e.g., getting to the Internet from the computer, organized links of Internet-based resources	1.8 (n=238)	1.7 (n=184)	1.8 (N=422)
Having access to the Internet via the library is very important to me	1.6 (n=236)	1.7 (n=184)	1.7 (N=420)
The computer and telecommunications equipment all work very well*	2.1 (n=235)	1.8 (n=183)	2.0 (N=418)
I find the speed of the Internet, e.g., loading graphics and downloading information, to be quite good	2.7 (n=237)	2.6 (n=183)	2.7 (N=420)
There is adequate access to the library's Internet computer(s), e.g., little or no waiting time**	2.3 (n=238)	2.0 (n=184)	2.2 (N=422)
I would tell other members of the community about the library's Internet connection	1.7 (n=234)	1.6 (n=184)	1.6 (N=418)
I was able to use the Internet without library staff or other assistance	1.8 (n=234)	2.0 (n=183)	1.9 (N=417)
This library provides Internet use training that meets my needs, e.g., general Internet use, searching, printing	2.0 (n=225)	1.9 (n=175)	2.0 (N=400)
1=Strongly Agree		**5=Strongly Disagree**	
*Statistically significant t-test; p<.0107		**Statistically significant t-test; p<.0044	

Figure 33. User Satisfaction with Library Public Access Internet Services by User Internet Skills.

Factor	Novice User	Intermediate User	Expert User	Overall User Assessment
While on the Internet, I generally find the information that I come to the library to obtain*	2.2 (n=150)	1.9 (n=217)	1.9 (n=57)	2.0 (N=424)
While on the Internet, I generally find information that is very useful and interesting**	2.0 (n=148)	1.7 (n=215)	1.6 (n=57)	1.8 (N=420)
The Internet access provided by the library is easy to use, e.g., getting to the Internet from the computer, organized links of Internet-based resources***	1.9 (n=150)	1.7 (n=216)	1.6 (n=56)	1.8 (N=422)
Having access to the Internet via the library is very important to me	1.7 (n=151)	1.6 (n=213)	1.8 (n=56)	1.7 (N=420)
The computer and telecommunications equipment all work very well****	1.8 (n=150)	2.0 (n=213)	2.4 (n=55)	2.0 (N=418)
I find the speed of the Internet, e.g., loading graphics and downloading information, to be quite good	2.6 (n=150)	2.6 (n=214)	3.0 (n=56)	2.7 (N=420)
There is adequate access to the library's Internet computer(s), e.g., little or no waiting time	2.0 (n=150)	2.2 (n=216)	2.3 (n=56)	2.2 (N=422)
I would tell other members of the community about the library's Internet connection*****	1.5 (n=148)	1.6 (n=214)	2.0 (n=56)	1.6 (N=418)
I was able to use the Internet without library staff or other assistance******	2.4 (n=148)	1.6 (n=212)	1.5 (n=57)	1.9 (N=417)
This library provides Internet use training that meets my needs, e.g., general Internet use, searching, printing	2.0 (n=142)	1.9 (n=206)	2.1 (n=52)	2.0 (N=400)

1=Strongly Agree **5=Strongly Disagree**

*Statistically significant t-test; p<.0412

**Statistically significant t-test; p<.0237

***Statistically significant t-test; p<.0107

****Statistically significant t-test; p<.0022

*****Statistically significant t-test; p<.0008

******Statistically significant t-test; p<.0001

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- Less satisfied with the computer and telecommunications equipment (rating of 2.4).

These data suggest, therefore, that training and/or expertise can enhance the users' experience with the Internet. The data also suggest, however, that the more expert a user, the more elevated are his/her expectations of Internet connectivity.

DISCUSSION

This section discusses the findings from the study and presents comparisons to a similar survey of U.S. public library connectivity conducted in May 1997 (Bertot, McClure, and Fletcher, 1997). This section neither discusses all the data nor does it present a comprehensive review of public library connectivity issues. It is, rather, a selective discussion of key issues for the public library community in general and the Victoria public library community in particular to consider as future plans for library Internet connectivity are developed and implemented.

The U.S. Context

There is no national public library Internet connectivity program in the United States. Rather there exists a multi-level, often competing and contradictory, policy environment that generally leaves public libraries to fend for themselves to get connected. The national government in the U.S. (federal) provides less than one percent of public library funding, thus public library funds are largely from state and local governments. There are, however, recent federal policies and legislation that can have a tremendous impact on U.S. public library Internet connectivity.

The Telecommunications Act of 1996

The Telecommunications Act of 1996 (P.L. 104-104) (TCA) was the first significant legislative overhaul to the Communications Act of 1934. The TCA essentially updated a variety of key aspects of the telecommunications industry, creating a more market-driven industry that relied on competition to foster lower telecommunications rates throughout the nation (Mueller, 1997).

The universal service provision of the TCA specifically directed the Federal Communications Commission (FCC) to create a discount structure for telecommunications services for schools, libraries, and rural health care institutions (P.L. 104-104, Section 254). Based on the broad guidelines established by the TCA, the FCC issued its final universal service rulemaking on May 7, 1997. In this ruling, the FCC created a (Federal Communications Commission, 1997, Section X):

- $2.25 billion annual discount fund for schools and libraries; and
- Telecommunications discount structure ranging from 20%-90% for telecommunications services (defined as telecommunications conduits -- e.g., leased-lines -- internal wiring, and Internet connectivity). The discount rate a school or library can receive depends on the percentage of students on school lunch programs and the location (urban/rural) of the school or library.

The universal service provisions of the TCA, and the FCC implementation of those provisions, aim to increase connectivity of schools and libraries to the Internet. The final FCC rulemaking regarding the award mechanisms for these discounts remain unclear as this report is written.

The Library Services and Technology Act

On September 30, 1996, President Clinton signed into law the Library Services and Technology Act (P.L. 104-208) (LSTA). LSTA marked a change in the direction of federally-funded library initiatives over its predecessor the Library Services and Construction Act (LSCA) in several key ways:

- LSTA consolidates portions of the Higher Education Act (HEA) that related to a variety of library-related aspects. In doing so, LSTA creates the Institute for Museum and Library Services (IMLS) as the federal agency responsible for the administration of LSTA;
- LSTA applies to nearly all types of libraries, not just public libraries;
- LSTA expands the scope of library activities beyond those traditional services of books and buildings to electronic networking activities; and

- LSTA requires states to evaluate and report on the impact of LSTA-funded initiatives.

Taken together, these key components of LSTA create a new federal-state-library funding environment that emphasizes collaboration, performance, and technological innovation.

It is within this federal telecommunications and library policy context that U.S. public libraries continue to connect to the Internet and provide patrons with access to network-based resources.

The Victoria Context

Victorian public libraries have undergone major transformations in both general operations as well as electronic networking activities during the last several years. With the installation of a new government in 1995, there was a major restructuring of local government which resulted in changes to library services, for example, consolidations and newly formed services out of branches from multiple services. In addition, the library services were subject to compulsory competitive tendering (CCT), in which library services were put out to tender. Although CCT remains in effect, it is unclear as to whether library services are a viable candidate for tendering by non-library entities/staff.

A main driving force for bringing electronic networked services to Victoria is VICNET. VICNET, established by the Royal Melbourne Institute of Technology (RMIT) and the State Library, is a community computing network. The goal of VICNET is to (Mackenzie and Siegersma, 1996):

- Offer affordable access to the Internet;
- Promote electronic publishing; and,
- Provide Internet-based information, particularly Victorian information.

Initial VICNET funding came from the Victorian Government's Community Support Fund (CSF).

Viclink, Victoria's peak public library body, also applied for CSF funding to establish Internet points-of-presence in public libraries. The proposal was funded in the amount of $2,500 per library branch.

Victorian public libraries connected to the Internet in this environment -- restructuring, attempted privatization, and collaboration. Within this competing and somewhat contradictory context, Victorian public libraries have achieved 100% connectivity as of December 1997.

Selected Study Findings

The U.S. Study final report, and the data contained within this Victoria Study final report, present detailed data concerning public library involvement with and use of the Internet. The reports include such data as factors

affecting public library involvement with the Internet; types of Internet connections and technologies; types of public-library public Internet access services such as on-line databases, CD-based services, and special hardware/ software for persons with disabilities; library Internet-related costs as a portion of total library IT budgets; and library ratings of Internet services and technologies. Readers are encouraged to review the U.S. final report and the findings section of this report for more detailed findings than are presented in this.

U.S. Study Findings

The U.S. Study shows that libraries are connecting rapidly to the Internet, are providing increased public access to the Internet, and are increasingly offering electronic networked services to patrons. At present, 72.3% of public libraries have some type of Internet connection.[1] The study also shows, however, that the distribution of Internet connectivity, costs, and service provision is not equal across library population of legal service areas or urban/rural status (American Library Association, 1997).

It is important to note that public libraries will continue to connect to the Internet and provide increased public access to Internet services. Indeed, by May 1998, approximately 86% of public libraries will have an Internet connection. Moreover, those libraries will serve approximately 97% of the U.S. population. Thus, the libraries that do not plan to connect are most likely to be rural and small and serve a small portion of the U.S. population.

On the surface, the connectivity statistics are impressive. Readers, however, should note that libraries generally disagree, across all population of legal service areas and Urban/Rural categories, that their public access Internet services are adequate. In particular, libraries indicate that patrons do not have adequate access to public access workstations and that those workstations are not sufficiently equipped for today's multi-media requirements.

While the public library Internet connectivity percentages are compelling, libraries that do have Internet connections use predominantly dial-up technology to connect to the Internet. Although a majority of public libraries do provide graphical access to the Internet, most do so over a single dedicated phone line at rates of 33.6kbps or less (a majority -- 49% -- at 28.8kbps). For libraries that do have

[1]This report references data and figures that appear in Bertot, J.C., McClure, C.R., and Fletcher, P.D. (1997). *The 1997 survey of public libraries and the Internet: Costs and capabilities for the electronic networked environment.* Washington, DC: American Library Association Office for Information Technology Policy. Available: <http://www.ala.org/oitp/research/pl97sum.pdf>.

leased-lines, a majority -- 56% -- still use 56kbps lines. While 27% of public libraries do have T1 lines, discussions with survey respondents and author experience in other studies, indicate that most of the T1 lines are fractional, with 56kbps lines connecting library system branches to the main library's services. Thus, readers should not be surprised when responding libraries rate their Internet connections as somewhat inadequate.

Victoria Study Findings

As of August 1997, 90.5% of all Victoria public library services had an Internet connection. [Note: the rate of connectivity reached 100% in December 1997]. Overall, however, only 58.5% of public library service branches had an Internet connection. [Note: such branch data are not currently available for U.S. public libraries].

All connected library services offer public access Internet services, with an average number of 7.8 PCs per service. Public access services most offered include Web browsing, access to on-line CD services, access to newsgroup services, and printing services. Of interest and significance is that nearly half of all library services offer some type of Internet and computer training programs for patrons.

Victoria public libraries rely upon both dial-up and leased-line Internet connections. Of the libraries that rely upon dial-up connectivity, 53.0% connect at speeds of 28.8kbps and 39.8% do so at speeds of 33.6kbps. A majority of libraries, however, rely upon 64kbps ISDN leased-lines. For both dial-up and leased-line connectivity, libraries have an average of one line. It should be noted that nearly 30% of non-metropolitan libraries have no leased-line connections. Thus, a vast majority of non-metropolitan libraries rely upon dial-up connections. It should not be surprising, therefore, that non-metropolitan libraries are less satisfied with their Internet connections than are metropolitan libraries.

Finally, the data show that Victoria libraries are increasingly providing electronic content for public consumption, not just acting as gateways to other content. The study found that nearly 30% of Victoria library services host Web pages, and that 13.2% host Web pages for local organizations.

Implications of the Findings

The findings from both the U.S. and Victoria Studies raise difficult questions that policy makers, library professionals, and researchers need to consider for public library Internet service provision:

(1) What is universal service in the networked environment? Is it:

- Connectivity?
- Not just connectivity, but a certain level of connectivity?
- Services provision over the network?
- A combination of a certain

level of connectivity and a level of services provision?

(2) Given the percentage/anticipated percentage of library Internet connectivity, has universal service been achieved for public libraries?
(3) What measures are necessary to assess, evaluate, and improve public library electronic networked services?
(4) How can public libraries better use, develop, and influence the creation of networked services to meet the needs of their communities?
(5) What new management strategies do libraries need to adopt to best meet the challenges of networked technologies?

Answers to such questions are not easy to derive. Careful consideration of these, and other, questions is necessary to inform policy makers and library professionals as to the best means possible to facilitate the on-going transition of public libraries into the electronic networked environment.

ISSUES AND STRATEGIES

The U.S. and Victoria Studies provide a range of data and findings through which it is possible to identify and discuss a number of policy issues. It is possible to organize these policy issues in terms of issues related to (1) national/Statewide information policies, and (2) public libraries. The purpose of this section is to describe and discuss selected key policy issues in each of these areas, and when possible offer possible options and strategies for dealing with these issues. The issues identified and discussed below are not exhaustive. Rather, they highlight significant topics that will require additional debate and discussion by policy makers, library professionals, and researchers.

National/Statewide Information Policies

Findings from the U.S. and Victoria Studies suggest a number of areas in which there is a need to review and debate national/Statewide information policies as they relate to the role of public libraries in the evolving networked environment. The vision of *connecting* public libraries, while a useful first step, will not in and of itself necessarily insure the successful *use* and *application* of the information superhighway. A range of issues other than connectivity require attention and debate.

Reaching 100% Public Library Connectivity

As of May 1997, 72.3% of U.S. public libraries have some type of Internet connection, as compared to 20.9% in 1994 (McClure, Bertot, and Zweizig, 1994). The overall public library level of Internet connectivity varies greatly, however, by the population public libraries serve, with 1997 data suggesting that public libraries in larger population areas having signi-

ficantly higher (100% for libraries with population of legal service areas of greater than one million) rates of Internet connectivity than public libraries in smaller population areas (56.3% for libraries with population of legal service areas of less than 5,000). There is also a significant difference in public library connectivity between urban (86.9%) and rural (66.0) libraries. Thus, public library Internet connectivity is neither equal nor even throughout the nation.

The U.S. Study data projects that by May 1998, 85.8% of all public libraries will have some type of connection to the Internet and that 75.3% of all public libraries will provide public access to the Internet. By using population of legal service area data contained in the public library Universe File (National Center for Education Statistics, 1997), an estimated 90.8% of the U.S. population is served by a connected public library. Of that 90.8%, 78.2% of the U.S. population has access to a public library that provides public access to the Internet. By combining planned Internet connectivity and population data, nearly the entire nation -- 97.1% should have access to a connected public library, and 91.3% should have access to a public library providing public access to the Internet by May 1998.

The U.S. Study data also suggest that approximately 27.7% of public libraries that serve 9.2% of the population remain to be connected to the Internet as of May 1997. The data also show that these public libraries have small communities, typically 5,000 or under, and oftentimes are located in rural areas. For a host of reasons, the costs to connect the last 27.7% of public libraries and the costs for those libraries to provide networked services, are likely to be significant.

In contrast, the Victoria Study showed that 90.5% of Victoria public libraries have an Internet connection (although this is 100% as of December 1997). Thus, Victoria library services have Internet services available in its libraries throughout the State. Connectivity in terms of branches, however, drops significantly to 58.5%.

Such connectivity figures raise the question of at what point is it possible to say that public libraries are providing adequate connectivity to the public? At a 100% connectivity rate, including all branches? When 90% of public libraries provide Web-based information resources and services? Perhaps the attention now, should shift from *connectivity* to the *provision of networked services.*

Importance of Internet-based Services Rather than Connectivity

There is an important relationship between the type of Internet connection a public library has and its ability to provide a range of services. The U.S. Study shows that 53.2% of connected public libraries rely on dial-up modems, while only 27.6% rely on leased-line connectivity. The Victoria study shows that Victoria libraries also rely upon a

combination of leased-line and dial-up connections. A majority of Victoria libraries utilize 64kbps ISDN lines, however, non-metropolitan libraries rely heavily on dial-up 28.8kbps and 33.6kbps connections.

Given the extent and sophistication of information resources and services now available on various Websites, dial-up access or low bandwidth leased-line connectivity simply is inadequate to provide access to that information, interactive services with other organizations, or sophisticated applications that include interactive video conferencing and extensive graphics.

As discussed elsewhere (McClure and Bertot, 1997b), public libraries exist in a range of very different environments that use multiple types of connections, receive various types of state and local assistance, work in a variety of networking consortia, and serve communities that oftentimes vary considerably from library to library. In this context, the key issue now is less the degree to which public libraries have an Internet connection, but rather the:

- Degree to which specific levels of connectivity (e.g., 28.8 baud versus a single channel ISDN leased-line or a T1) affect services development and the extent and types of Internet-based services that public libraries can provide given that connection;
- Extent to which public library Internet connectivity and Internet-based services meet community information needs;
- Means through which public library information technology infrastructures are evolving, their costs, the degree to which these infrastructures integrate various electronic and networked services, and the funding mechanisms of these infrastructures; and
- Need to determining specific criteria to assess when "Universal Service" to the public has been accomplished.

The goal of 100% connectivity to the Internet by public libraries may in fact be the wrong goal. Perhaps the goal to drive national/statewide policies is that 100% of public libraries will be able to provide a range of high quality Internet-based *services* with high bandwidth (e.g., capable of full motion video) that best meet the needs of their communities and best link those communities to the global information infrastructure. National/Statewide goals related to "connectivity" alone may be short-sighted.

Scully (1998) also discusses a number of key issues related to the development of Internet-based public library services in Australia and also includes a discussion of key Australian source material on the topic. The paper suggests that issues such as the degree to which the Internet should be considered a "core" or "value-added" service are currently being debated and the roles of Australian public libraries

in the evolving global networked environment are currently in flux.

Need for a New National/Statewide Data Collection Paradigm

Although information on connectivity, use, and costs -- as reported in the U.S. and Victoria studies -- are important, policy makers and the public library community may need to reassess the types of national data needed to continue the discussion of the role of public libraries in the NII and the evolving global networked environment.

Current longitudinal national public library data collection in both the U.S. and Victoria for the electronic networked environment are irregular, funded on an ad-hoc basis, and tend to collect data that reflect the ability and willingness of libraries to essentially count and "check off" various electronic services (Bertot, McClure, and Fletcher, 1997; Bertot, McClure, and Zweizig, 1996; McClure, Bertot, and Zweizig, 1994). These data include:

- Type and level of Internet connection;
- Types, capabilities, and location of public access workstations;
- Types and availability of publicly available network-based services such as databases, Web access, and remote dial-in capabilities;
- Internet/network services costs and payment responsibilities -- e.g., who pays for those services; and
- Factors affecting Internet connectivity.

The networked environment, however, is much more complex than such data collection activities reflect. Indeed, research by the authors shows that a network is a multi-dimensional entity that encompasses minimally the (Bertot and McClure, 1996):

- Technical Infrastructure: the hardware, software, equipment, communication lines, and technical aspects of the network;
- Information Content: the information resources available on the network;
- Information Services: the activities in which users can engage and the services that users may use to complete various tasks;
- Support: the assistance and support services provided to help users better use the network; and
- Management: the human resources, governance, planning, and fiscal aspects of the network.

Data collection activities, therefore, need to begin to reflect this multi-dimensionality of electronic networks.

Rather than solely concentrate on the technical infrastructure and services aspects of a network as current data collection activities do, there is a need to collect data that begins to describe network services and content using a new data collection paradigm. This paradigm might include such measures as:

- Extensiveness: how much of the

service has been provided, e.g., number of users logging-in per week on a bulletin board, or the number of participants of a particular listserv;

- Efficiency: the use of resources in providing or accessing networked information services, e.g., cost per session in providing access to remote users of an online catalog, or average time required to successfully telnet to a remote database;
- Effectiveness: how well the networked information service met the objectives of the provider or the user, e.g., success rate of identifying and accessing the information needed by the user;
- Service quality: how well a service or activity is done, e.g., percentage of transactions in which users acquire the information they need;
- Impact: how a service made a difference in some other activity or situation, e.g., the degree to which network users enhanced their ability to gain employment or pursue business;
- Usefulness: the degree to which the services are useful or appropriate for individual users, e.g., percentage of services of interest to different types of user audiences; and
- Adoption: the extent to which institutions or users integrate and adopt electronic networked resources or services into organizational or individual activities, e.g., classroom instruction.

The adoption of this new data collection paradigm would provide policy makers, library professionals, and researchers with the ability to begin to formulate answers to more difficult questions such as the relationships between Internet and network-based expenditures and levels of service; the relationship between various connectivity models and the levels of network services; the impact of network-based resources on users of the network; the impact of funding and other policy initiatives on connectivity; and the development of network performance measures.

Failure to grapple with measuring the networked environment as it pertains to the provision of library services will leave libraries without the ability to describe, document, and disseminate the uses and impacts of electronic library services to policy makers and funding institutions. Moreover, without adopting electronic data collection activities into regular data collection vehicles, a national public library data void in an important and emerging area of public library services would result.

Role of Government

The U.S. federal and Victoria governments can take a much more active stance in supporting and coordinating policy and program support to enhance the role of libraries -- and especially public libraries -- in providing public access to the Internet. There are a number of themes that should drive

that support:

- Access to and use of the Internet is a tool that empowers the public and provides numerous benefits for individuals, communities, and society at large. Public libraries can serve both as a place of first resort -- a community Internet resource center -- and a place of last resort -- a safety net -- in providing public access to the Internet for the nation;
- Library access to and use of the Internet still varies widely based on geographic location, type of library, user characteristics, technical infrastructure available, and a range of other factors. There is a need for a flexible and dynamic policy system to respond to these different access needs. Support for connectivity alone is not enough;
- Set the connectivity agenda and direction through discussion, policies, and assistance to public libraries that promote a certain *minimal* level of connectivity and networked services capabilities;
- Partnerships among and between government, the library community, information providers, and other institutions/organizations are essential for increasing access to the Internet; and
- Develop a formal governmental framework for both policies and programs (e.g, LSTA) that supports libraries, and other organizations, which can then provide "equal opportunity" to access and use the Internet.

Libraries are especially well-suited to advance the national/Statewide objectives for public access to the information superhighway. Much can be done to enhance libraries' role in this evolving networked environment so that the U.S. and Victorian citizenry can be empowered in both their professional and personal lives.

Public Library Policy Issues

In addition to policy issues of particular concern at the national/statewide level, there also are policy issues that are best considered as the primary responsibility of public libraries and the public library professional community to resolve. Data from the U.S. and Victoria Studies suggest a number of topics and some possible strategies that require attention if public libraries are going to successfully make the transition into the global networked environment.

Thinking Locally in a Global Networked Environment

Public librarians increasingly will be forced to face and resolve a dilemma. On one hand, the networked information environment allows the library to obtain information and services from around the world. The library also must compete and provide services in this global information market. But on the other hand, the traditional "market" of the library has been its local

community or legal service area determined largely by the geographic boundaries of its funding body. Issues regarding who, or what, exactly is the public library's "community" in the global networked environment are complex. To what degree, for example, is the funding for local information content supporting global access and use?

Clearly, the prime directive for most public libraries will be to serve that community which provides the library's funding. But the library's competitors in the global networked environment are under no such constraint. Thus, public libraries will need to operate in a global networked environment with locally-based funding -- unless they develop revenue-producing strategies for services delivery outside their local, geographically constrained market. This dilemma will likely force libraries to re-think who or what is their community, what networked services to provide to this community, and how users of library services outside the legal funding jurisdiction should pay for their use of public library networked services.

The Endless Upgrade

One-shot fixes for information technology in public libraries are not a viable policy strategy. Public libraries wishing to provide high quality networked services to their communities will need to develop a rational strategy and budget for the purchase, installation, maintenance, and replacement of information technology. Data from the U.S. and Victoria Studies show that respondents assessed cost factors as most important in affecting their overall involvement in the Internet. Conversations with a number of study respondents confirm that many public libraries have yet to recognize adequately the on-going nature of information technology costs and to develop funding strategies to support those costs.

Some funding institutions may wish to re-think their policies of providing "start-up" workstations and connectivity to public libraries as a means of encouraging them to "get connected" and provide networked services. Research completed by the authors in another study suggests a number of public libraries participating in such a program will not be able to obtain local support for such upgrades in the future and will continue to rely on "state aid" or outside grants for information technology upgrades (McClure and Bertot, 1997a). Perhaps the endless upgrade for public libraries' technology investments should be seen as a combined national, State, and local responsibility.

Focus on Network-Based Services

While it is important to stress the significant increases in the percentage of public libraries that have some type of Internet connection, the U.S. and Victoria Studies also suggest that a relatively low percentage of libraries provide Internet-based services. For

example, the data show that overall, 10.4% of U.S. public libraries and 30% of Victoria public libraries have a Web server. Meanwhile, only 18.5% of U.S. public libraries provide dial-in access to library services. These percentages increase dramatically for the larger urban and suburban areas, but overall, these numbers suggest relatively modest provision of *services* by public libraries over the Internet.

Libraries with neither Web servers with relevant and desirable content nor "dial-in" access services for its community will be severely handicapped as they co-exist with other content-providing Internet service providers (ISP). The range and sophistication of services and products being provided by these ISPs, particularly those that own and provide original content (e.g., America OnLine), compared to those services being offered by public libraries, is impressive. Thus, some of the key issues for public libraries in this area are:

- Must the public library compete with the ISPs for users and services? If it does not compete will there be a decline in overall public library use?
- What network-based services and resources can a nationally organized consortia of public libraries provide -- rather than each library going it alone?
- Rather than compete with ISPs, should public libraries create, maintain, and point to electronic resources that are unavailable elsewhere to the public?
- What network-based services are most important and appropriate for a particular public library?
- What value-added services can the public library provide in terms of organizing or accessing other ISP services so that the library is not marginalized?

Recognizing that the public library now must compete in the broader networked information environment for provision of resources and services will require a range of new and innovative strategies.

Redeploying Library Resources

Data from the U.S. Study suggest that typically, a public library spent about 45-50% of its information technology budget on Internet-related costs. In Victoria, public libraries spend an average of 22.5% of their IT budget on Internet-related costs. For U.S. libraries, this is up significantly from 1996 where the percentage of Internet costs of the typical IT budget was in the 30-40% range (Bertot, McClure, and Zweizig, 1996, pp. 24-26). [Note: no previous data is available for Victoria libraries]. But the U.S. Study data also reveal a number of interesting trends related to *anticipated* increases in certain types of Internet.

While the survey indicates a range of difficulties in defining and describing appropriate Internet cost categories, the findings clearly suggest that overall costs for Internet-related expenditures (1) continue to increase relative to all IT

expenditures, and (2) are likely to continue to increase as a percentage of not only the IT budget but probably relative to all library expenditures.

A key issue for library administrators, then, is if overall library budgets are generally stagnant or increasing only marginally, how will existing resources be redeployed to cover these anticipated increases for a range of Internet costs? These data, as well as conversations with a number of librarians, suggest that many public libraries are being "squeezed" to support new expenditures for the transition into the global networked environment versus maintaining existing, traditional, public library services.

Redeploying existing resources may require many public libraries to rethink, re-engineer, and prioritize programs and services in light of this evolving networked information environment (Benton Foundation, 1997). For example, it may be much less costly to license access to an information service or product through a local consortia than it is to continue to buy the product or service directly from the vendor. Or, it may be less expensive to obtain the product or service in an electronic format than in print. Story hour to all branches of the library system may be less costly and cover more users via interactive video conferencing than via traditional means. Issues related to how best to redeploy resources ultimately will depend on a range of local and situational factors. But such issues are likely to continue to require careful attention by public librarians and are not likely to go away in the near term.

Performance Measures and Statistics for Networked Services

Many public libraries are only beginning to consider how to keep statistics related to Internet use and services. Libraries that do provide a range of web services or other network-based services note that circulation, in-house reference transactions, and other traditional statistics of use are stagnant or decreasing. In most cases, electronic services counts are also rising. Thus, in order to have an accurate picture of library use, libraries will need to maintain statistics related to use of Internet services and resources.

For example, it is possible to utilize the logs on Web servers to track the number of times users "hit" specific types of networked services. It is also possible to use log server analysis to track patterns and IP addresses that provide a general sense of who is using what type of services. Libraries that provide electronic reference services will also need to keep statistics of such use or conduct regular surveys to be able to track and document such uses. To a large degree issues related to how best to identify, collect, and analyze data to produce statistics of electronic or networked information services are only now being discussed and defined.

A key policy issue for public librar-

ians is how to assess the overall quality and impact of networked services. As Smith and Rowland state, however (1997, p. 168):

> Identifying meaningful outputs to measure the use of electronic resources and networks by public library patrons is the holy grail of current library measurement and evaluation. As library services and collections migrate from traditional print-based resources to an electronic environment, such time-honored output measures as circulation per capita, reference transactions per capita, and title fill-rate, tell only part of the story of library use volume.

Equally important is to compare the quality and costs of traditional types of library services, e.g., in-person reference, versus email-based reference services. Some initial work done in this area indicates that such measures are possible, but that some effort, thought, and new types of data collection techniques -- such as log server analysis -- may be needed (Bertot et al., 1997).

To a large degree, public librarians, researchers, and policy makers do not understand the linkages between Internet costs and the quality and type of Internet services that are possible given a specific level of costs. Clearly, low bandwidth will limit the types of networked services that a library can provide. But the degree to which other cost factors directly affect quality and type of services provision is unclear. Costing Internet-based services and comparing such services costs to more traditional services costs will continue to be an important area for future research.

NEW ROLES FOR PUBLIC LIBRARIES

New roles for public libraries in the evolving networked environment are still being developed (McClure, Bertot, and Beachboard, 1996). But clearly, the *electronic* public library in the global networked environment has the potential to be a community resource center -- with the term community being defined very differently than in traditional use (Marcum, 1996). These roles might be to:

- Introduce new information technologies to the community;
- Demonstrate applications and uses of networking for education, lifelong learning, economic development, and a range of other applications;
- Be a local access point to a range of government information resources and services;
- Create, maintain, and organize electronic community information;
- Provide public access interactive video conferencing for the public to conduct a range of activities including electronic commerce and interaction with state, local, and Federal government;
- Equalize access such that all members of the local community

can realize the benefits from "being connected" to the global networked environment;

- Provide training to community residents on how to use the Internet and interact successfully with a range of service being provided via the net; and
- Promote collaboration among schools, local governments, and other community groups to use the Internet.

While the library can also serve as a safety net, a place of last resort to access and use the global information network, its greatest potential lies in serving as place of *first* resort to access and use the Internet.

Electronic resources of all types and forms would be publicly available for those who cannot connect from the home or workplace. Librarians and educators would serve as electronic intermediaries, navigators, and instructors -- being actively involved in assisting people best use the network. Parents, students, adult learners, educators and others could work interactively and inter-dependently on projects and activities that we can only begin to imagine now. The library, as a non-partisan and publicly-supported institution, with strong local community ties, is well-suited to serve in this role. A major role for public libraries, however, and the larger education community in the networked society, is to reduce socio-economic gaps in being able to tap the full potential of the network and provide equal opportunity to networked services and resources that are available to the public.

MOVING BEYOND CONNECTIVITY

Both the U.S. and Victoria have significant issues with which to contend if public libraries are to be a central force in the development and use of the Internet. These issues, some of which are outlined in this study, will ultimately require new management approaches and either new or reallocated resources within the public library services. The existing technological infrastructures and services are simply inadequate in both settings to meet community needs.

Thus, to some degree, the public libraries in Victoria must now move beyond concerns related to connectivity and work with policy makers, local organizations, and others to (1) obtain high quality connectivity with high bandwidth, and (2) develop applications and a range of value-added services in the networked environment that specifically meet the needs of the library's community of users. While federal and State governments can provide some support for public libraries to accomplish these goals, local public libraries will have to develop strategies and visions that are most appropriate for their particular setting. Such strategies might best be accomplished in partnership among government, the private sector, other organizations, and public libraries.

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APPENDIX A
LIBRARY SERVICE SURVEY

Viclink Survey of Public Library Internet Use

Instructions: Viclink is conducting this survey about your library's level of involvement with or use of the Internet. Your responses will provide state and local decision-makers with a better understanding of Internet use in Victoria's public libraries. Thank you for your participation! **PLEASE RETURN YOUR QUESTIONNAIRE TO CHRISTINE MACKENZIE BY AUGUST 20, 1997.**

For questions concerning the survey, contact:
Christine Mackenzie
Library Manager DX 212169
Mornington Peninsula Shire Council 03/59860346 phone
Private Bag 1000 03/59812900 fax
Rosebud, Victoria 3939 <christinem@mornpen.vic.gov.au> e-mail

LIBRARY LABEL HERE

If your library is **not** now using Internet, please fill out questions 1 through 7 and 28, and return. If your library **is connected** to the Internet, please complete the entire survey.

PART A: General Library Information and Internet Connection Issues
To be completed by the library manager

1. Name of person responding: _____

2. Title: _____

3. Total paid staff in EFT: _____ EFTs

4. What were the **total library operating expenditures** (excluding materials budget) for the last completed financial year?

   $_____

5. Is your library **currently connected to the Internet** in any way? (TICK [✓] ONE ONLY)

   ❑ YES **(please complete questions 6 through 28)**

   ➡ If yes, when did your library ***first*** **establish** its Internet connection? _____ mm/yr

   ❑ NO **(please complete questions 7 and 28)**

6. If your library **is currently connected to the Internet**, how many branches/bookmobiles have access to the Internet?

   _____ No. of branches out of _____ branches

   _____ No. of bookmobiles out of _____ bookmobiles

BEST COPY AVAILABLE

7. Please assess the degree to which the following possible factors affect your library's current level of Internet use for public access: (PLEASE CIRCLE ONE NUMBER FOR EACH ITEM)

	Very Important				Very Unimportant
a) Costs of system/server hardware (*e.g., PCs, terminals, servers*)	1	2	3	4	5
b) Costs of software (*e.g., operating systems--Unix, Windows NT -- applications software--WordPerfect*)	1	2	3	4	5
c) Costs of communications hardware (*e.g., routers, modems*)	1	2	3	4	5
d) Cost of telecommunications fees (*e.g., long distance charges, leased lines*)	1	2	3	4	5
e) Costs of training and education (*for staff and users*)	1	2	3	4	5
f) Costs of content/resource development (*e.g., special collections development, Web home page development*)	1	2	3	4	5
g) Costs of facilities upgrades (*e.g., wiring, air conditioning*)	1	2	3	4	5
h) Costs of staffing (*e.g., EFTs dedicated to management/ maintenance of IT*)	1	2	3	4	5
i) Costs of Internet connection maintenance (*e.g., equipment repairs, equipment maintenance*)	1	2	3	4	5
j) Access to reliable telecommunications services	1	2	3	4	5
k) Availability of a reliable Internet Service Provider	1	2	3	4	5
l) Availability of in-house computer technical expertise	1	2	3	4	5
m) Availability of staff time to develop expertise on the Internet	1	2	3	4	5
n) Availability of federal/state money	1	2	3	4	5
o) Ability to plan for and integrate new technologies into library services	1	2	3	4	5
q) Concern over access to objectionable material	1	2	3	4	5
r) Other (*please specify*):	1	2	3	4	5

_____

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PART B: Public Access Issues
To be completed by the library manager or library employee with most knowledge of the library's public access Internet services

8. Please indicate whether your library **provides patrons the following types of Internet services: (TICK [✓] ALL THAT APPLY). NOTE:** If your library system does not have a main/central library, please check the ***Main/Central Library and ALL or SOME branches*** options to indicate whether the Internet services are provided in all or some of the library service's branches.

→ ***If your library provides these Internet services at SOME branches, please indicate the number of branches at which the services are provided.***

	No	Yes				Fee-for-Service	
INTERNET SERVICE		**At Main/ Central Library ONLY**	**At Main/ Central Library and ALL Branches**	**At Main/ Central Library and SOME Branches**	**Remote/ Dial-in Service**	Yes	No
E-mail account services				__ out of __			
Access to newsgroup services				__ out of __			
Graphical World Wide Web browsing (***e.g., Netscape, Explorer***)				__ out of __			
On-line database services (***e.g., Dialog, Uncover***)				__ out of __			
On-line CD services (***e.g., Encarta, Census data***)				__ out of __			
On-line reference services (***e.g., e-mail reference questions and answers***)				__ out of __			
Printing services (***e.g., patrons can print Internet material***)				__ out of __			
Special software/hardware for individuals with disabilities				__ out of __			
Other: (***please specify***) _____				__ out of __			

9. How many public access PCs does your library service have? _____ No. of PCs

→ Are there additional PCs **just for library staff access** (include headquarter PCs)? ❑ Yes ❑ No

If yes, how many? _____ No. of terminals/PCs

BEST COPY AVAILABLE

10. Given the type and number of Internet **public and library staff access terminals** you described in question 9, please identify the extent to which you agree with the following statements: (**PLEASE CIRCLE ONE NUMBER FOR EACH ITEM**)

	Strongly Agree				Strongly Disagree
a) Our library's **patrons** have adequate access to terminals/PCs (***e.g., 10 minutes or less waiting for access to a terminal/PC***)	1	2	3	4	5
b) Our **library staff** have adequate access to terminals/PCs (***e.g., 10 minutes or less waiting for access to a terminal/PC***)	1	2	3	4	5
c) Our library's public access PCs are sufficiently equipped for today's multi-media requirements (***e.g.,sufficient memory, hard disk storage, sound capabilities***)	1	2	3	4	5

11. If your library service operates a web server, please provide the web server's (s) URL:

http://_____

12. Does your library service host homepages for local community organisations (***e.g., Councils, schools***)?

❑ Yes ❑ No → If yes, does your library charge a fee for this service? ❑ Yes ❑ No

---

PART C: Internet Service Cost and Training Issues
To be completed by the library director or library employee with most knowledge of the library's Internet connection and technology costs

13. Please review the library's **TOTAL expenditures** for the **last completed financial year** (include all operating, capital, and other sources) and then **compute/estimate** the total amount of expenditures for **ALL information technologies** (IT) for the **last completed financial year** (***e.g., hardware/software costs, OPAC /CD-ROM subscription fees, telecommunication costs, training, staffing, etc.***):

Total Library IT Expenditures: $_____

14. Of the **total library expenditures for all information technologies** (IT) reported in question 13, please **compute/estimate** the amount spent on providing **Internet-related services** for staff and patrons for the **last completed financial year** (***e.g., telecommunications, hardware, and training costs***):

Estimated Library Internet Expenditures: $_____

15. If applicable, please **compute/estimate** the total fair market dollar amount of Internet-related costs reported in question 14 **NOT** paid for by the library (***e.g., grants for PCs***):

    Total Library Internet Expenditures Not Paid by Library: $_____

16. Does your library service offer patrons **formal Internet/computer training** services? **(TICK [✓] ONE ONLY)**

    ❑ Yes (If yes, please answer questions 17 through 20)
    ❑ No (If no, please skip to question 21)

17. Does your library service **charge patrons** for Internet/computer training classes? **(TICK [✓] ONE ONLY)**

    ❑ Yes → If yes, what is the typical fee per patron per class? $_____
    ❑ No

18. What **types of Internet/computer training classes** does your library service offer patrons? **(TICK [✓] ALL THAT APPLY)**

    ❑ Introduction to computers (***e.g., use of a mouse, clicking and dragging, printing***)
    ❑ Introduction to the Internet (***e.g., using Netscape, newsgroups***)
    ❑ Advanced Internet techniques (***e.g., Web-based searching, downloading files***)
    ❑ Other: (***please specify***) _____

    → Please estimate the number of users your library service has trained to date: _____ users

19. Does your library service have a **training facility** in one or more of its branches (***e.g., a separate area with Internet-ready computers***)? **(TICK [✓] ONE ONLY)**

    ❑ Yes
    ❑ No

20. Who conducts your library service's training classes? **(TICK [✓] ALL THAT APPLY)**

    ❑ A qualified Internet trainer (***e.g., through the Internet Training Institute program***)
    ❑ A non-credentialed librarian/staff Internet trainer (***e.g., a library Internet champion with no formal training***)
    ❑ Other: (***please specify***) _____

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PART D: Library Internet Connection Issues (PLEASE COPY THIS PAGE AND COMPLETE FOR EACH LIBRARY BRANCH/HEADQUARTERS WITH AN INTERNET CONNECTION)
To be completed by the library manager or library employee with most knowledge of the library's Internet connection and technology

21. Name of person responding: _____

22. Title: _____

23. E-mail address: _____

23. Library Branch/hq: _____

24. Library Service: _____

25. If applicable, please describe the **type, number,** AND **cost** of the **dial-up connection** (*e.g., using a modem to connect to the Internet*) to the Internet this branch has:

Branch Dial-Up Connection (TICK [✓] ALL THAT APPLY)
❑ None
❑ Internet gateway access (*e.g., via commercial on-line provider such as Access One*)
❑ Other (*please specify*): _____

→

Speed of Branch Connection (TICK [✓] ALL THAT APPLY)	# of Lines	Annual Cost per Line
❑ 14.4K (bits per second) or less ❑ 28.8K (bits per second) ❑ 33.6K (bits per second)		$
❑ Other (*please specify*): _____		$

26. If applicable, please describe the **type, number,** AND **cost** of your library's **leased-line connection** to the Internet (*e.g., ISDN*):

Branch Leased Line (TICK [✓] ALL THAT APPLY)
❑ None
❑ On-line Public Access Catalog (OPAC) gateway
❑ Local Area Network (LAN) access (*e.g., through library network*)
❑ Wide Area Network (WAN) access (*e.g., through Council WAN*)
❑ Other (*please specify*): _____

→

Speed of Branch Connection (TICK [✓] ALL THAT APPLY)	# of Lines	Annual Cost per Line
❑ ISDN 1B+D – 64K (bits per second)		$
❑ ISDN 2B+D – 128K (bits per second)		$
❑ Other (*please specify*): _____		$

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27. For the next year, how would you rate the **adequacy of this branch's Internet connection** in meeting the branch's needs along the following criteria: **(PLEASE CIRCLE ONE NUMBER FOR EACH ITEM)**

	Very Adequate				Very Inadequate
a) Accessing multi-media information (*e.g., full motion video, sound, images*)	1	2	3	4	5
b) Sufficient bandwidth (*e.g., speed of connection - 64k ISDN, etc.*)	1	2	3	4	5
c) Sufficient PC capacity (*e.g., disk space, memory*)	1	2	3	4	5
d) Local Area Network capabilities (*e.g., speed, capacity*)	1	2	3	4	5
e) Accessing reliable Internet service providers	1	2	3	4	5
g) Other (*please specify*):	1	2	3	4	5

_____

28. Is your library service's On-line Public Access Catalog (OPAC) Z39.50 standard compliant?

- ❑ Yes
- ❑ No
  - ➡ If not, can your OPAC software be upgraded to be Z39.50 standard compliant?
    - ❑ Yes ❑ No

Thank you for your participation! Please return the survey to Christine Mackenzie at the address on the front of the survey.

APPENDIX B
USER SURVEY

VICLINK SURVEY OF INTERNET USERS

INSTRUCTIONS: This library is participating in a study of public library Internet use. As part of that study, we are asking users of the library's public access Internet terminals to tell us what they think about the library's Internet services. Please take the time to complete this survey. Your responses will provide state and local decision-makers with a better understanding of Internet use and users in Victoria's public libraries. Thank you for your participation! **PLEASE RETURN YOUR QUESTIONNAIRE TO THE INFORMATION DESK.**

To be Completed by the Library

Library Service (please enter code number): _____
Library Service Branch (please enter code number): _____
How many Internet public access terminals are there at this branch? _____

Like this: ○ NOT: ○ ○ ○ ○

I. Background Information

1. Age:
   ○ Under 10 ○ 10-19 ○ 20-29 ○ 30-39 ○ 40-49 ○ 50-59 ○ 60-69 ○ Over 70

2. Gender: ○ Male ○ Female

3. Highest completed level of education:
   ○ Primary ○ Secondary ○ Technical/TAFE ○ University

4. In terms of your Internet skills, do you consider yourself to be:
   ○ A novice user ○ An intermediate user ○ An expert user

5. Are you a new user of this library because of the library's Internet connection?
   ○ Yes ○ No

6. Besides the library, do you have access to the Internet at any of the following (Please mark all that apply):
   ○ Home ○ Work ○ School ○ Other ○ No other access

[over]

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7. Please describe the types of information you look for when using the library's Internet connection (Please mark all that apply):

❍ Work-related ❍ Homework/study ❍ Other

❍ Recreation ❍ General browsing

II. Library Internet Connection Information

Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Agree				Strongly Disagree
8. While on the Internet, I generally find the information that I come to the library to obtain.	❍	❍	❍	❍	❍
9. While on the Internet, I generally find information that is very useful and interesting.	❍	❍	❍	❍	❍
10. The Internet access provided by the library is easy to use, e.g., getting to the Internet from the computer, organized links of Internet-based resources.	❍	❍	❍	❍	❍
11. Having access to the Internet via the library is very important to me.	❍	❍	❍	❍	❍
12. The computer and telecommunications equipment all work very well.	❍	❍	❍	❍	❍
13. I find the speed of the Internet, e.g., loading graphics and downloading information, to be quite good.	❍	❍	❍	❍	❍
14. There is adequate access to the library's Internet computer(s), e.g., little or no waiting time.	❍	❍	❍	❍	❍
15. I would tell other members of the community about the library's Internet connection.	❍	❍	❍	❍	❍
16. I was able to use the Internet without library staff or other assistance.	❍	❍	❍	❍	❍
17. This library provides Internet use training that meets my needs, e.g., general Internet use, searching, printing.	❍	❍	❍	❍	❍

THANK YOU FOR YOUR PARTICIPATION! PLEASE GIVE THE COMPLETED SURVEY TO THE INFORMATION DESK.